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**Abstract**

# Research Reactors in the Federal Republic of Germany

by

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A survey paper on the utilisation of research reactors in the Federal Republic of Germany is given. The following classes of research reactors are covered:

1. Major reactors for applied and basic research and for isotope production at the three main nuclear energy research centers Karlsruhe, Jülich and Geesthacht
2. Reactors for basic research and training at München and Frankfurt universities and at the Hahn-Meitner institute in Berlin
3. Small reactors for training purposes at various universities
4. Argonaut-type reactors for reactor physics studies at several reactor development laboratories

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The various low-energy critical and subcritical assemblies in use for reactor physics and engineering studies are not included in the survey.

The paper includes a short technical description of each reactor (in tabular form) and some additional information on major experimental facilities, such as loops, neutron spectrometers and other devices of special interest. Operational problems relevant to the utilisation of the reactors are briefly discussed. Applications are described in the following fields

- Basic research (neutron and nuclear physics, solid-state physics, radiation chemistry, radio-chemistry and radio-biology)
- Applied research and engineering (reactor physics, shielding, fuel element and material testing)
- Isotope production
- Training

A substantial part of the research programmes is carried out in collaboration between various institutions. Universities and other scientific organisations cooperate with the major nuclear energy centers in the fields of basic research and training, whilst some of the engineering and applied science research projects are operated jointly by industry and the major reactor centers. Several programmes are carried out within the framework of association contracts with Euratom. The more important of these cooperational efforts will be briefly reviewed.

Among the future developments to be discussed are the MZFR project now under construction at Karlsruhe - a multipurpose reactor for power production and fuel element testing - and several smaller special purpose research reactors to be built at various laboratories. No further large research and test reactors are presently envisaged for the next years. However, there will be a considerable effort to improve further the utilisation of the existing reactors and - by close international cooperation - to utilize irradiation capacities available in foreign research and test reactors. There is also a considerable interest in participation in the ENEA Very High Flux Reactor project.